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Factors Affecting the Perception of Transactional Distance in the Online Learning Environments*

Abstract

Following the pioneers Dewey and Moore, the concept of Transactional Distance (TD) has been adapted to distance education as the psychological and communicational gap in the flow of the messages between the learner and the instructor. As the theory evolved; structure, dialogue and learner autonomy have been accepted as the three main factors of TD. The purpose of this paper is to present a case study and discuss the correlation between structure, dialogue and learner autonomy and the perception of distance as reported by the learners enrolled at online graduate programs of a dual-mode university. The analysis of the findings indicate that structure and dialogue have positive correlation with transactional distance, the more the learning environment is structured and provides opportunities for interaction, the less is the distance felt and experienced by the learners. Since learner autonomy and dialogue with instructors did not have a significant effect on the distance perceived by learners, the research partially supports the theory. This research is another contribution to the literature on TD indicating that each case needs to be evaluated separately and continuously in terms of factors affecting TD experienced by learners.

Keywords: Transactional distance, distance learning, online learning, learner autonomy, structure, dialogue.

Çevrimiçi Öğrenme Ortamlarında Transaksiyonel Uzaklık Algısını Etkileyen Faktörler

Özet

Dewey ve Moore öncülüğünde ortaya çıkan transaksiyonel uzaklık kavramı uzaktan öğrenme bağlamına uyarlanmış ve öğrenen ile öğreten arasındaki mesaj akışında boşluklara ve yanlış anlaşılmalara neden olabilecek iletişimsel ve psikolojik boşluğu anlatmak üzere kullanılmıştır. Oluşabileceği saptanan bu boşluk öğrenmeye karşı tutumu ve davranışları etkilemektedir. Yaptığı araştırmalar ve incelemeler sonucunda Moore etkileşimsel uzaklığın üç bileşeni olduğu sonucuna varmıştır. Bu bileşenler yapı, diyalog ve özerkliktir. Bu üç bileşen hem uzaklık algısını hem de öğrenme sürecini doğrudan etkilemektedir. Bu araştırmanın amacı Transaksiyonel Uzaklık kuramının yapı, diyalog ve özerklik bileşenlerinin uzaklık algısı ile ilişki düzeyini incelemektir. Araştırma evrenini 2018-2019 eğitim-öğretim yılı Anadolu Üniversitesi Uzaktan Öğretim Tezsiz Yüksek Lisans Programlarına kayıtlı öğrenenler oluşturmaktadır. İlgili programlardaki öğrenenlerin uzaklık algısı Moore'un Transaksiyonel Uzaklık kuramındaki boyutlara göre yapılandırılan 23 maddeli bir ölçek ile değerlendirilmiştir. Araştırma bulgularıyla, bazı faktörlerin uzaklık algısı üzerinde daha etkili olduğu sonucuna varılmıştır. Bu çalışma ile transaksiyonel uzaklığın çevrimiçi öğrenme ortamlarına ilişkin yapılan operasyonel tanımlarına katkı sağlanmaya çalışılmıştır. Ayrıca açık ve uzaktan öğrenenlerin görüşleri alınarak, Anadolu Üniversitesi Uzaktan Öğretim Tezsiz Yüksek Lisans Programları bir durum çalışması olarak incelenmiş ve sonuçların öğrenme ortamları ve etkileşim araçlarının geliştirilmesine katkı sağlaması amaçlanmıştır. Elde edilen sonuçların Anadolu Üniversitesi ve açık ve uzaktan öğrenme imkanı sunan benzer kurumların karar süreçlerine de katkı yapacağı düşünülmektedir.

Anahtar Kelimeler: Transaksiyonel uzaklık, uzaktan öğrenme, özerklik, yapı, diyalog, uzaklık algısı

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Introduction

Distance education, which started with correspondence, has become a worldwide practice in which printed materials and technological advances took their part in time (Cohen, 1999). With the Internet in daily life, distance learning improved fast and the changing learning media removed the time and space barriers to education. Transactional distance was first used by Dewey and became a distance education theory with the contributions of Moore. Transactional distance felt by the learners is conceptualised to be based on the relation between structure, dialogue and learner autonomy. According to Moore (1991), in a highly structured (rigid) learning environment, the quality of dialogue decreases and the perception of distance increases. In a dialogue-rich learning environment, structure and the feeling of distance both decrease. Also, as transactional distance increases, learner autonomy (self-direction) does, too.

There are many studies on transactional distance in the literature of Open and Distance Learning (ODL) field. These studies have revealed the dimensions of TD and their varying relations with each other. Their effects on learning and the perception of distance change in different contexts. In order to make fruitful discussions and make continuous improvement of learning media, it is necessary to conduct new research for different cases. Each course/program has its own learner profile with different expectations and needs. Each institution has a legal framework and requirements that the content and learning media are designed accordingly. However the challenge to meet them and reduce the distance felt by learners persists.

The purpose of this paper is to give a short literature review on research in TD and discuss the findings of a research about the distance felt by learners enrolled at online master's programs at a dual-mode university. The data were collected through the voluntary participation of the 2018-2019 academic year (spring semester) Distance Education Online Masters' Programs learners. The total number of learners enrolled was 1198 and 155 of them participated and marked the scale items. The scale link was shared in their online learning environment (Learning Management System- LMS).

What is Transactional Distance?

In the online Open and Distance Learning dictionary (2020), TD is defined as the relational, personal, psychological and perceptional interaction in the learning environment constructed through dialogue, structure, content and autonomy instead of the spatial and physical distance betweeen the instructor and the learner. Distance education is the reciprocal interaction of instructors and learners who are in different places. This explains that distance is not a geographical distance, on the contrary it is a pedagogical phenomenon (Moore and Kearsley, 2011, p. 210). Contextually instructional designers and instructors are not expected to transfer their traditional face-to-face teaching techniques to online lessons with some minor changes through use of technology. The main point is how to identify the methods and strategies to ease the learning experience in the learning environment(s) while replacing traditional learners with online learners. These should be such methods and teaching theories that the psychological distance and the risk of misunderstanding between the instructor and the learner can be minimised. This necessitates an effectively planned learning process.

Internet has removed the physical distance between the instructor and the learner. However, other factors, which are not physical but cause barriers in learning, keep creating a communication gap between the learner and the instructor. Instructor-learner interaction and the frequency, type, communication tone of this interaction and how much the learners participate in the learning activities could be regarded among these factors. The main question is how this emotionally felt or perceived distance can be measured and defined. How often interaction happens, how happy they feel while communicating in an electronic environment could be the indicators (Paul et al, 2015, p. 366). Comeaux (1995) carried a study and explained that because of the camera, audio protocoles and screens the learners may feel shy and this affects their interaction negatively, decreasing the quality of dialogue. In order to overcome this, she suggested accepting and using the cameras as a communication tool instead of making them the focus of the lesson.

In Zhang's research (2003), a scale of 200 items was used to measure different types of TD between learner-instructor, learner-learner, learner-content and learner-interface. According to the findings, the TD between the learners and the instructors did not affect the level of learners' dependence/commitment to their instructors. However, distance perceived by the learners, affected their commitment to the lesson/course (Zhang, 2003). Another interesting finding is again from research by Comeaux (1995) about the class discussions among learners. The online learners expressed their experience as "watching tv". The learners emphasized that they did not participate in the classes eagerly and did not want to attend to something boring. Belanger (1999, pp. 22-27) has stated that it is important to get regular feedback from the learner and perpetuate this improvement cycle. Thus, it would be possible to see if the learner(s) attended eagerly and understood the course content or not. The instructors should evaluate their strategies while they call the distance learners into discussions and technologies.

Gorsky and Caspi (2005b) have made a content analysis on research articles about TD to see whether they support the conceptual framework of the theory or not. They have concluded that previous research partially support the theory and in cases of support there is a lack of reliability or content validity or both. According to the findings of some experimental studies, basic assumptions of the theory are not supported and their validity can not be proven. A major critique has been that the theory oversimplifies the complex issue of perception of distance as "the more dialogue the less TD". Murphy and Rodríguez-Manzanares (2009) worked on the effects of TD in a web-based distance teaching high school. Mainly they were interested in the harmony among participants in order to reduce the TD and this harmony was expected to happen through dialogue. At the end of the study it was revealed that the learners still felt TD, however it was due to lack of visuals. The instructors asked for learners' photos and talked about their personal experiences to make them feel more comfortable. By communicating through other out-of-class tools, they went beyond TD however because of the limitations of curriculum and teaching plans (due to decreasing flexibility in structure) TD increased again. This study has underlined the importance of role of instructor and learner autonomy. Increase or decrease in one factor can lead to corresponding changes on the other(s).

According to the research conducted by Nwankwo (2013), the more teaching experience a faculty member has, the less transactional distance felt by learners is. Among findings of this study the six points are significant for TD: interface used, learner-learner interaction, structure of the lesson, instructor-learner interaction, learner autonomy and expectations of learners (Nwankwo, 2013, pp. 64-66) In the qualitative research by Kassandrinou, Angelaki, and Mavroidis (2014), data were collected via semi-structured interviews with 12 learners at Hellenic Open Education University (HOU). It was seen that most of the learners had overcome TD related problems through an effective interaction with only a few learners/peers; since they could not have that kind of interaction with all other learners. In other words there was TD among learners. 7 out of 12 learners told they did not need to have an interaction or they hesitated to do it. It was only owing to "warm-hearted and friendly" instructors as learners explained that had a significant role in decreasing TD felt. Based on learners' views, authors suggest that approaches to increase collaboration need to be activated and a community must be set up with the online learners (Kassandrinou et al., 2014).

Huang, Chandra, DePaolo, Cribbs, and Simmons (2015) identified TD as a theory that requires more analyses. Thereupon, they conducted a study to prove the validity of the theory. In their study the relationship between the main factors of TD in the light of environmental factors and demographic distribution of learners was observed. An online group of 200 learners participated. The outcome is that high level of structure which is identified as the interaction of learner-content and learner-interface at web-based lessons is required to decrease the perceived TD. Similarly, as Moore mentioned in his framework, TD seriously decreases in class atmospheres where there is content-rich learning.

According to Dewey, life experience is a process which is the result of individual's interaction with his/her environment. This is a process when the environment affects the perception of the individual and how the individual perceives his/her environment. In this respect knowledge is the construction of concepts. Also, knowledge is a human interference or reaction. It can be adapted or appears with the purpose of restructuring concepts and structuring them depends on the enviromental factors. In this context, TD which Moore (1993)

describes as a communication gap between instructor and learner, is in fact a gap between the perceptions of instructor and learner. Perception here means a common perception and interpretation, so TD is the lack of a mutually accepted perception of information, ideas, approaches, psychological and emotional needs and emotions. Moreover, TD is experienced in different ways by people who have different cultural and educational background. For instance, TD experience and perception of a Greek and Indian is different from each other (Giossos, Koutsouba, Lionarakis, & Skavantzos, 2009).

Three Factors: Structure, Dialogue and Autonomy

Among structure, dialogue and learner autonomy, Moore and Kearsley (1996) mention that elements such as course design, learning objectives, activities, assignments, planned interaction and assesment can be grouped under structure. The quality of the lesson changes depending on how carefully these elements are combined and structured. Different strategies may be followed: Each learner may be required to follow the same steps of study and audio and visual materials may be synchronised clearly with certain pages in study instructions. In another lesson learners may be asked to search and discover unidentified websites and do some reading. After that, they can be allowed to hand in an assignment whenever they feel ready according to their own speed. Also learners can be told to call or e-mail their instructors/mentors when they need support. A lesson with a flexible design is less structured (Moore & Kearsley, 2011, p. 212). Likewise dialogue, structure is also qualitative and is identified with the education philosophy of the institution, philosophies and emotional characteristics of instructors, personalities of learners, academic levels and other characteristics such as nature of content and communication tools (Keegan, 2005, pp. 23-24; Moore & Kearsley, 2011, p. 212). Whether educational outcomes, teaching strategies and assesment methods of the lesson are flexible or not is identified within structure (Keegan, 2005, p. 23).

The second element is dialogue which occurs with the communication between instructor and learner. Dialogue is a related with interaction and includes the reaction of the learner to the instructor's behaviours and words. A dialogue can be defined as interaction or series of interactions. It is goal-oriented, constructive and significant for each party. Each party in a dialogue is respectful, active listener and contributor. In learning environments a dialogue aims to improve the learner's comprehension (Moore, 1993; Moore & Kearsley, 2011, pp. 210-212). In an online lesson each learner can interact with the instructor via e-mail however this is a highly structured (rigid) dialogue because the communication is through writing. Web-based audio or visual conference technology also includes high level dialogue. Written and asynchronous communication methods are usually preferred by foreign students as they feel themselves more comfortable (Moore & Kearsley, 2011, pp. 210-212). In Gorsky and Caspi's (2005b) model, dialogue is divided into two sub categories: interpersonal (external voice with others) and intrapersonal (inner voice). Intrapersonal dialogue consists of mental processes, like a person's thinking by himself/herself, observing and solving. Learning materials, such as individual learning contents, TV, radio can be given as the examples of structural resources of intrapersonal dialogue. According to Gorsky and Caspi (2005b), physical presence of resources is not required in inner dialogue. Learner's thinking about his/her lesson somewhere is also about the intrapersonal process. Therefore, it is important to organize teaching materials and learning environments which encourage intrapersonal dialogue. However, it is necessary that learner's individual characteristics contribute to the process. Interpersonal dialogue is the interaction among individuals. Here the source of the dialogue is human and it is significant for distance education learners to socialize. Structural sources of outer dialogue are: teaching design, size of the group and the accessibility of learner and instructor. Interpersonal dialogue, which is an effective communication channel, can be used to prevent or decrease learners' isolation. As a result of learner's interaction with the instructor or the other learners face-to-face or synchronised or asynchronised via communication tools, interpersonal dialogue occurs (Gorsky & Caspi, 2005b, pp. 139-140).

Thirdly, learner autonomy is the learner's control and management on his/her independent learning process (Moore, 1993; Stein et al, 2005, p. 106). The concept of autonomy means self-direction. The concept of self-directed learning means autonomy, independent learning and being alone. For self-directed learner it means going on self learning with the least aid from external sources. In fact, self-determination/control on

learning is a distinctive characteristic of self-directed learning (Brookfield, 1985, p. 7). If "autonomy" is having no supplementary materials, then it is impossible to talk about any autonomous learning. Moore (1993) argued that an autonomus learner is not an isolated or rejected person or someone who does not need anyone/anything. Learners get in touch with books, broadcasts and computer programmes which are there to develop skills or attain knowledge, abilities and perspectives. Although authors of the learning materials do not exist physically, they partly control learners' cognitive processes. Learner autonomy/self-direction is a level where learners have a bigger role than instructor(s) in defining the goals of the learning programme, learning experience and the assesment decisions. As Knowles (1990) has emphasized; individuals are taught to be dependent at school and they are not ready to manage their own learning process. To do this they, as an adult, they need to be involved in an orientation process where they learn how to learn (Keegan, 2005, p. 28).

Relation Between Structure, Dialogue and Autonomy

Let's think about a lesson based on video recordings which is highly structured with no dialogue between the instructor and the learner; where every word and movement of the instructor, each minute and every part of the lesson is pre-determined. In such a case, TD between the instructor and the learner is high (Keegan, 2005, p. 24; Moore & Kearsley, 2011, p. 212). Comparison between communication through correspondence, which is a traditional method and synchronous online learning may be misleading. Instead of making generalizations, it is necessary to analyze programs/courses separately because TD is not related to the use of technology only and it requires more than that. If in a lesson the structure is very rigid and boring, which is unwieldy for the learners, that naturally affects the quality of the interaction in a negative way (Dron et al, 2004). If the amount of communication among individuals is determined and reflected to the course design in the way activities that shall be carried out, the dialogue can be more natural. Thus, the correlation between structure and dialogue and the social presence fostered by the activities will be affected positively (Marmon, 2018, pp. 5-6). In a lesson where there is less TD, learners receive guidance and instructions from the instructor through dialogues happening naturally throughout the lesson. The materials need to be flexible and adaptable to the changes required according to the learner needs. In a structured and less interactive lesson, learners need guidance. For example if there is no dialogue or structure at all, the learners must be free about the strategies like what to study, how to study, when and where to study and how much to study (Moore & Kearsley, 2011, p. 212).

Saba and Shearer (1994) studied the correlation between dialogue and structure and how they affect TD in a lesson carried out via video conferencing. They also found out a dynamic correlation between structure and dialogue. As dialogue and learner autonomy increased, both structure and TD decreased. Dron et al. (2004) conducted a case study in a mixed learning environment. The learning environment was intentionally designed to have dialogues. In fact the researchers wanted to analyze the correlation between dialogue and structure and the effects of these two variables on the learning outcomes separately. According to the results of the study there was little participation to the discussions, so dialogue was not enough and was disappointing from the learner's perspective. The results confirmed Saba and Shearer (1994) that there is an inverse relationship between dialogue and structure.

Dialogue is a gift of technology, each learner can interact with the others individually in his/her own time and appropriate to his/her own pace. This was neither possible in traditional distance education nor in face-to-face traditional education. Thus, all the learners are given the opportunity to learn together and shyness emanating from any kind of reason can be reduced. Slow learners find the opportunity to participate to learning as the fast learners with their own pace (Keegan, 2005, p. 29). Presentations in the online lessons have a contribution to learner autonomy. Moreover, learners have become source(s) of information for each other. The presentations enable learners to have more autonomy and improve and reinforce their motivation. Online lessons offer a friendlier and supportive atmosphere than learning environments with less dialogue or traditional learning environments. It is observed that learners are satisfied with online lessons in cases where they can cooperate. The instructor needs to be alert to avoid over structuring the lesson and try not to take dialogue under strict monitor/control. The other important points for the instructor are to offer equal opportunities and recognise who falls behind w/out being too oppressive (Moore & Kearsley, 2011).

Research Method

The quantitative data analysis techniques were applied in the case-study in order to discuss the relation among structure, dialogue, learner autonomy and the perception of distance as reported by the learners enrolled at online graduate programs of a dual-mode university. Exploratory Factor Analysis (EFA) was used for the correlation between the measured variables in the dataset to see the groupings of variables with strong correlation. Confirmatory Factor Analysis (CFA) was used to confirm the factor structure and see its consistency with the theory. Structural Equation Model (SEM), was then utilized to see the relations of the latent variables in the model. This multivariate causal modeling let the structural components to be examined simultaneously (Geffen, Straub, & Boudreau, 2000).

Participants and Data Collection

The total number of learners enrolled at distance education online masters' programs was 1198 for the spring semester of 2018-19. The data was collected from learners in 18 different programs via purposeful sampling. The number of participants who answered the survey voluntarily was 155 and 149 of them could be involved in the analyses after data screening process.

Data Collection Tool

After a thorough literature review, data collection tool was selected and the research questions were organised. Huang et al. (2015)'s "Measuring transactional distance in web-based learning environments: an initial instrument development" was decided to have the appropriate structure and items for the context and research questions. The items were selected and translated after written permission of the researcher who developed the scale.

The first part of the instrument requires demographic information to be filled in, such as age, gender, the administrative questions about registry to the programme such as the BA program participants graduated from and whether they received another online course before or not. Second part contains a 23 item with a 5 point -Likert scale. Five field experts were consulted to review the items in order to meet the content and face validity of the scale. With the feedback received, necessary corrections and improvements were done on the wording of items.

In the scale, there are 7 items under the structure dimension, 8 items in the dialogue, 2 items in the autonomy, and 2 items for the perception of distance. Under structure "Lesson content is visually organized well" and "All the due dates for this lesson was specified" items refer to rigidity, but the other items under the same factor refer to flexibility. 8 items of dialogue was divided into two as "Dialogue with the learner" and "Dialogue with the instructor" and there are 4 items in each subfactor. In autonomy there are 2 items both of which are positive expressions. As regards perception of distance "In spite of the physical distance, I feel the instructor's presence" and "In spite of the physical distance, I feel the other learners' presence" items look grammatically negative but they are positive in meaning which is although there is physical distance, the learner expresses that s/he feels close to the instructor or the other learners. The closeness here means that the perception of distance is low or there is none. In 5 -Likert scale, 1 stands for "certainly disagree" and 5 stands for "certainly agree". Marking 5 to perception of distance items thus had a positive meaning. 5-certainly agree- given to the item "In spite of the physical distance, I feel the instructor's presence" means that the distance is felt very low or none.

Context of the Study

To enroll at the distance education online masters' programs; a bachelor degree is necessary and the grade point average must be at least 2.00/4.00 or 50/100. Prior to the online lessons, where online and offline techniques are used, the learning materials are uploaded to the Learning Management System (LMS). In order to fulfill the attendance requirements, it is enough to attend to half of the total number of classes. Through the LMS, the lessons are broadcast live, according to the calendars determined by the Graduate Schools and are recorded/archived in the system (Distance Education Online Masters' Programs Catalogue, 2019).

Findings

According to the descriptive analysis of demographic data; 64 women and 85 men volunteered to participate to the study. The majority are over the age 35 (91 learners). As regards their bachelor degrees, 18 learners graduated from natural sciences, 88 learners graduated from both economic and administrative disciplines, 28 learners graduated from humanities and 15 learners have graduated from other fields. The learners have different backgrounds however the majority of them are from social sciences. 40 learners were in their first semester, 77 learners were in their second semester, and 32 learners were in their third (last) semester. 45 learners had previous online learning experience and 104 learners did not.

Results of descriptive statistiscs related to the TD scale (structure, dialogue, and autonomy) and Cronbach's Alpha coeffiecients of the dimensions are presented in Table 1.

Table 1. Descriptive statistics of transactional distance scale and reliability analysis result

Factors and Related Items	M	SD	Cronbach's Alpha
Structure	**4.06**	**0.81**	
Lesson content is visually organized well.	4.02	1.01	
The structure of the lesson enables the material to be revised according to the learners' feedback.	4.02	0.96	
The lesson is structured in a way enabling me to study at my own pace.	3.80	1.20	
I feel comfortable while using the LMS where the lesson is presented and other related technologies.	4.28	0.86	
The instructor gives technical support if needed.	4.11	0.99	
I am free to choose the technology to communicate with the instructor and other learners.	4.02	1.14	0.901
All the due dates for this lesson was specified.	4.21	1.03	
Dialogue with the Learner	**4.34**	**1.00**	
I communicated with the other learners to structure and share the knowledge.	4.23	1.19	
I communicated with other learners through different communication channels (email, telephone, discussion board, online chat, whatsapp)	4.33	1.18	
The communication I had with the other learners about the lesson is valuable for me.	4.48	0.91	
			0.903
Dialogue with the Instructor			
I communicated with the instructor to structure and share the knowledge.	4.17	1.08	
I communicated with the instructor through different communication channels (email, telephone, discussion board, online chat, whatsapp)	4.34	1.02	
The instructor values my sharings.	0.40	0.80	0.881
Autonomy	**4.12**	**0.75**	
I manage my time to study effectively.	4.25	0.80	
I am good at time management in general.	4.01	0.87	0.775

According to the reliability scores of the instrument, the internal consistency of the scale was met. The descriptive statistics of the perception of distance scale and the Cronbach's Alpha reliability analysis result is shown in Table 2.

Table 2. Descriptive statistics of the perception of distance scale and the result of reliability analysis

Perception of Distance	M	SD	Cronbach's Alpha
	4.19	**0.93**	
In spite of the physical distance, I feel the instructor's existence.	4.21	0.97	
In spite of the physical distance, I feel the other learners' existence.	4.17	1.07	0.803

According to Table 2, the reliability score of the perception of distance scale was found to be 0.803 indicating that the scale is highly reliable for the study. In order to examine the TD scale factors and the perception of distance; Pearson correlation analysis was made, the results are given in Table 3.

Table 3. The correlation between the factors of transactional distance scale and the perception of distance

	Structure	Dialogue with Learner	Dialogue with Instructor	Autonomy	Perception of Distance
Structure	-	0.37**	0.63**	0.37**	0.61**
Dialogue with Learner		-	0.53**	0.18*	0.58**
Dialogue with Instructor			-	0.36**	0.59**
Autonomy				-	0.30**

**$p<0,01$; *$p<0,05$

As stated in Table 3, the factors of dialogue with the learner, dialogue with the instructor and autonomy showed statistically significant positive correlations with the structure. In this respect, it can be stated that as structure gets more rigid/less flexible, the other scores of other dimensions increase. Even if statistically significant and positive correlations among autonomy and all other factors, the levels of relationship were relatively low comparing to other pair of associations.

Statistically significant positive level relationship among the perception of distance and structure, dialogue with the learner, dialogue with the instructor and autonomy factors. Within this context it can be stated that as the perception of distance reduces (which is, as the presence of the learners and instructors are felt) structure, dialogue with the learner, dialogue with the instructor and autonomy increase.

The analysis of the TD factors (structure, dialogue and autonomy) with demographic variables (gender, age, bachelor degree, duration of study, online learning experience) can be summarized as follows: Female learners perceived that the lessons are more structured. Also, women reported that they had more dialogue with the other learners and the instructors than men. For the learners under the age 29, the lessons are more structured than for the learners of other age groups. The factors of TD did not differ significantly for the other age groups. For the first and second term learners, the lessons are perceived to be less structured, providing more flexibility and they had less dialogue with their instructors. Also, first and second term learners are more autonomous compared to other learners. Previous online learning experience affected the level of dialogue,

so the learners who took online courses before, had more dialogue and interaction than others. Expectedly, women felt the social presence of the other learners and that of instructors more than men.

In order to investigate the effects of TD factors on the perception of distance; SEM was constructed. Two-stage approach suggested by Anderson and Gerbing (1988) was used to test the model. First, overall construct validity of the model was tested through the CFA. Then, measurement model was tested with goodness-of-fit indices before determining the path coefficients that reveal the factors with direct effect on TD (x^2/df: 2.089; CFI: 0.93; TLI: 0.91; SRMR: 0.07; RMSEA: 0.08 values are within acceptable ranges according to literature; Hu & Bentler, 1999, pp. 23-28; Tabachnick & Fidell, 2012, p. 722).

Table 4. The results of SEM

Factors		β	se
Structure Perception of Distance		0.538***	0.095
Dialogue with Learner Perception of Distance		0.340***	0.058
Dialogue with Instructor Perception of Distance		0.094	0.087
Autonomy Perception of Distance		0.070	0.069

β: regression coefficients; se: standard error
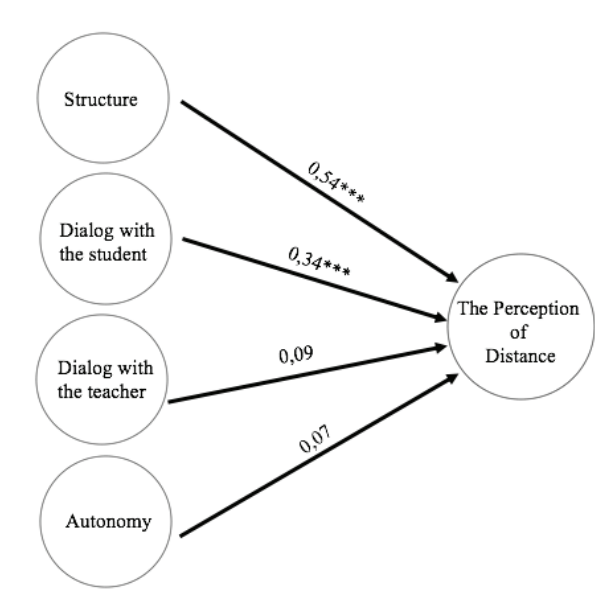
***p<0,001

Figure 1. Structural Equation Model

In Table 4 and Figure 1; it can be seen from the coefficient values that structure has a statistically positive and significant effect on the perception of distance. Dialogue with the learner has a statistically positive and significant effect on the perception of distance as well. However, dialogue with the instructor and autonomy of learner do not have significant effects on the TD perceived by the learners in the learning environment.

Conclusion

Despite different levels of support by research in the field, the conceptual framework of TD theory is very important for understanding and explaning the communication gap among participants of the online learning environment. The research findings discussed in this paper support the theory partially as well. Structure and dialogue constructs of the theory reflected a positive correlation with the perception of decreasing transactional distance. Shearer et al. (2014) and Huang (2015) have also found a positive correlation between transactional distance and structure. For Huang (2015), in order to reduce TD, dialogue is not enough also the level of structure must be high. Under structure, the sub-factors formality (rigidity) and flexibility have pointed to high scores in the 5 point Likert-type scale that has resulted with a perception of less TD.

This has shown that the learners felt the presence of other learners as real people. Social presence, aim of which is to create a flexible environment (Short et al, 1976), is the feeling of other people as real people (Gunawardena, 1995). In online environments increasing social presence motivates participation and sharing, thus the feeling of isolation and perception of distance both decrease. It is so, due to high level of peer-interaction, community feeling among distance master's programme learners.

According to Moore, media-rich environments enable learner-content and learner-interface interaction and TD decreases. Under the structure factor, interaction with the course materials, flexibility, and the items of personalization have the highest scores. These items refer to the tools and materials that increase the opportunities for dialogue. Under the dialogue factor, dialogue with the other learners has a statistically significant and positive effect thus decreasing the distance perceived.

The hypotheses of Transactional Distance Theory and different studies on TD reveal that each program and case needs to be evaluated separately. Generalisations are not preferred since results are not valid for every context (Chen & Willits, 1998; Gorsky & Caspi, 2005a, 2005b; Stein et al., 2005). In online masters' programs; learner interaction affects the perception of distance positively meaning that it reduces the distance. Learners receive guidance from each other besides their instructors, during the lessons and through the semester they are in a kind of cooperation, support, thus have a feeling of community. The online lessons could be considered as a limited type of interaction with the instructor, because live classes may not be enough to perpetuate the interest or the learners might not need to have an interaction with the instructor. This also changes up to the instructor, based on his/her communication skills and personal characteristics that affect the kind and level of interaction, the length of the online lecture and discussions. Also the nature of the program/discipline and related activities required to reach the pre-determined learning outcomes are decisive.

According to the graduation field as a variable, no differentiation was observed in the research findings. The reason for that could be explained partly because most of the learners had graduated from social science and humanities departments. As regards gender, women learners' high level of participation into dialogue compared with that of men can explain that they felt the other learners' and instructors' presence more, it was found out that the distance they felt was less.

According to the results of the study; autonomy and dialogue with the instructor do not affect the perception of TD. Chen and Willits (1998) also found out that autonomy did not have an effect on TD. Gorsky and Caspi (2005b) in their study found that basic statements of the theory were not supported. It was emphasized that "if dialogue increases TD decreases" is an underestimation. Stein et al. (2005) reached a conclusion that in addition to dialogue, a structured learning environment is necessary for learner satisfaction.

Overall, structure of the learning environment (indicating rigidity and flexibility of the context) and dialogue with the other learners (based on frequency and quality of interaction) had positive effects with the perception of decreasing transactional distance. However, dialogue with the instructors and learner autonomy as the other factors defined in the theory's conceptual framework have not proved any positive or negative effect on the TD felt by learners in this case. Future studies may involve qualitative techniques such as interviews with learners and instructors to further question the reliability of statistically measured data and reach solutions to meet the challenge of distance for both learners and instructors in online learning environments.

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